

acute, and within the past week he has had several chills and vomited once or twice.

Present Condition.—Somewhat reduced in flesh; loss of appetite; having a disgust for all kinds of food; motions from the bowels are regular once a day; sometimes twice; stools are straw-colored and pasty; breathing hurried and shallow; deep inspirations or sudden movements of the body elicits pain; tenderness is experienced on pressure in the region of the umbilicus and hypochondrium; the area of hepatic dulness is increased in all directions—notably below the false ribs, where there is also considerable tension and swelling; the point most noticeable is on a level with umbilicus about four inches to right and in a line with nipple; fluctuation is distinct and a hypodermic needle was introduced and pus withdrawn. The attending physician (Dr. Porcher) was sent for, and abscess of liver diagnosed. He decided to puncture it immediately with a large size trocar at the location mentioned above, where swelling was most marked, and a pint and a half of pus of a yellowish color, becoming bloody towards the last, escaped. A drainage tube was passed through the canula, and the latter removed, leaving the former in place; pus continued to discharge. (Operation after the method of Dr. Patrick Manson, of the Chinese Maritime Service.) Had a chill the next day, and his temperature rose to 105.2° ; nauseated and vomited two or three times. R. Quinine and iron given three times a day.

Sept. 15. Temperature has reached 105° , every evening since the operation; drainage tube removed; opening discharging continuously.

16th. Temperature did not rise higher than 102° to-day; is more comfortable, and has more relish for food, but has diarrhoea.

Dec. 16. Temperature normal; appetite is better; regained some flesh and the area of liver dulness markedly diminished; though pus continues to drain away. Has been taking quinine, sulphide calcium, Fehlow's syrup of the hypophosphites, and sherry wine.

March 1, 1885. His general condition is much improved; the discharge from fistulous opening is small in amount and thin and serous in looks; appetite very good; bowels regular and stools more of a natural color. Patient is still under treatment in the hospital.

April 20. Has been discharged from hospital, and can walk two miles without inconvenience.

May 12. No signs of his former disease.

ARTICLE V.

A CASE OF CHOLECYSTOTOMY. By CHARLES T. PARKES, M.D., Professor of Anatomy in Rush Medical College, Chicago.¹

THE rather recent revival of operative procedures for the relief of obstruction of the biliary ducts, has awakened a new and lively interest in all such cases; especially as the entire number of reported operations falls within a total of fifty.

¹ Read before the American Surgical Association, April 24, 1883.

Of this series, submitted to operations, by far the larger portion have been cases of cholecystotomy, by means of which a distended gall-bladder has been positively relieved, and in most of them the cause of obstruction, retained gall-stones, removed. In a few no gall-stones were found, while in others the cause of the obstruction could not be remedied.

The excellent and exhaustive paper, based upon four cases, presented to the profession by Drs. Keen and Musser,¹ of Philadelphia, portrays the operation of cholecystotomy, with all its vicissitudes and requirements, together with the symptomatology of duct obstruction so completely and lucidly, that there seems but little more to be said in addition to relating the history of a patient with gall-stones, who has been under my care during the past winter, and who was relieved by operation from their presence and the long-continued distress incidental thereto. Every one of these cases has some special circumstance of interest connected with it, and trustworthy conclusions only become possible after a consideration of all the facts culled from a large number of operations.

CASE.—Mrs. K. B., aged 29 years, married; born in America, and residing in Chicago, came under my charge December 10, 1884. She had been made quite an invalid by years of suffering, and when first seen by me had just passed through a two days' siege of great agony.

She related a history of more than two years' duration of suffering from paroxysmal pain, referred to the right hypochondriac and epigastric regions, and radiating beneath the right shoulder. These paroxysms were seemingly unattended with much or any febrile disturbance; were sometimes accompanied with constipation, and generally with loss of appetite. Quite often with them came nausea and vomiting. No biliary matter was ever vomited, and the feces were at all times light gray in color.

The attacks were of uncertain duration and somewhat uncertain frequency, but seldom remained absent longer than two weeks; so that the patient never had time to recover from the effects of one attack before she was prostrated by the recurrence of another.

One year ago a gall-stone as large as a coffee bean came away by the bowel; no others were found previous to or since that time, though often sought after. No amelioration of any of her symptoms followed its extrusion.

The patient had been under the care of worthy physicians all this time; they all diagnosed the cause of the trouble to be the existence of gall-stones, and had subjected the patient to every known remedial medicine, without relief other than that coming from the use of large doses of opium, and with these the patient's agony was intense during the acme of the paroxysm. Among the agents used were chloroform, ether, olive oil in large doses, and many other "cures," the best results following the administration of morphia.

Examination revealed the following facts: The patient is quite well nourished, flesh firm and in good quantity. The skin is slightly, yet noticeably, jaundiced all over the body. There is no complaint of itching. Complexion rather pale and sallow, facial expression indicative of suffer-

¹ THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, October, 1884.

ing and dread. Tongue clean and red. Examination of the thorax reveals nothing abnormal in the condition of its contents.

On inspection, the abdomen shows a clearly defined bulging of the right hypochondrium, extending into the epigastrium. Percussion defines liver fulness extending downwards fully three inches below the edges of the costal cartilages, also to the left some distance; again the dulness reaches to a higher point into the thorax than is normal. Palpation gives evidence of a resistant mass, smooth, well marked, and slightly tender, evidently an enlarged liver. Careful circumscribed percussion seemed to establish the existence of a separate point of dulness, about the size of a silver dollar, near the centre of the edge of the liver dulness, and in a line with the tip of the tenth costal cartilage. This had resonance surrounding it on all sides except above. It was somewhat elastic to the touch, and was supposed to be the fundus of the distended gall-bladder. No calculi could be certainly diagnosed as present by any external manipulation; subsequent results showed they would have eluded acupuncture, which was not practised. The feces are still light-colored, both during and after the anoxysmal attacks of pain. There is no ascites or tympany, neither is there the slightest evidence of oedema of the lower extremities.

Chemical analysis of the urine fails to reveal any evidence of albumen or other abnormal condition; although chocolate-colored, there was only a very slight reaction showing the presence of bile. The microscope gave no testimony in favor of degenerative changes in the kidney.

The prolonged existence of pain, referred to the one place, with absence of any evidence of other trouble, either benign or malignant, confirmed the diagnosis already made of obstruction of the gall-duets. Mrs. B. was told that probably no medical treatment would give her relief; but that she had been faithfully and properly treated by her previous attendants; and that nothing could be added to what they had already done with medicines; but that there remained for trial the operation of opening the gall-bladder. After an explanation thereof, she immediately gave consent to have the operation performed. With that intent she entered the Presbyterian Hospital of Chicago, December 15, 1884. On December 17th, a public consultation was held with Profs. Gunn, Ross, Estheridge, and Bridge, and Dr. Whitney, all of whom concurred in the diagnosis and the probable relief from operation.

After preparation in accordance with the principles of strict antisepsis in the clinical amphitheatre of Rush Medical College before the past winter's class and with the assistance of Prof. Moses Gunn and Dr. E. P. Davis, the following operation was done. An oblique incision five inches long was made over the tumor, parallel to and about two inches away from the edge of the costal cartilages. The walls of the abdomen were slowly divided, until the peritoneum was exposed throughout the length of the wound, all bleeding points were occluded, with the snap forceps or ligature, before opening the peritoneum. When this was finally done, there was exposed to view only the smooth, even surface of the enlarged liver. The lower edge of this organ was fully two inches below the line of the wound. Nothing could be seen of the gall-bladder.

By passing two fingers into the wound and beyond the liver the distended gall-bladder, round and tense, was readily felt. The finger was slowly and carefully carried around it, and by this means slight adhesions between it and the surrounding organs were broken down. Then the enlarged liver was forced up beneath the ribs by pressing upon its lower

surface, and in this way the gall-bladder was brought into the abdominal opening. Considerable difficulty was experienced in retaining it at the opening, for every inspiration made by the patient forced the liver downwards, and carried the gall-bladder with it. Prof. Gunn overcame this difficulty by placing his fingers on the under surface of the organ and forcibly holding it up beneath the ribs. Two small sponges, with tapes attached, were placed to the right and left of the bladder to isolate it as much as possible and at the same time to absorb any waste that might fall into the abdominal cavity.

The walls of the gall-bladder were very thin, and the clear fluid which it contained could almost be distinguished through them. An aspirator needle of medium size was thrust into the centre of the fundus with the intention of withdrawing the contained fluid by aspiration. After its introduction some movement of myself or the patient accidentally displaced the needle, and immediately there followed a free flow of viscid mucus, slightly tinged with biliary matter. This was prevented from entering the abdominal cavity by drawing the bladder closely against the lower corner of the wound; a slight puncture with the knife was followed by an outflow of three or four ounces of fluid; none entered the peritoneal cavity. As soon as the viscus was empty its walls were seized by two snap forceps about an inch apart, and the opening in the bladder enlarged to that length. Gall-stones were then sought for, first by a probe, then with a pair of forceps, and finally with the finger.

The cavity of the bladder was thoroughly explored with all three, but no bodies of any kind were found in it. The edges of the wound in the gall-bladder bled quite freely, and were compressed here and there with forceps. The difficulties attending the great enlargement of the liver prevented as critical an examination of the common duct as one would like; still, attempts were made to follow its course, but without success. No gall-stones were found, nor any other source of obstruction. The wound was closed in the following manner: stitches were first introduced through the edges of the abdominal wound on the right and left of the point selected for the attachment of the gall-bladder in the establishment of a fistula. Then the opening in the gall-bladder was fastened to the edges of the central portion of the external wound by means of five sutures, first passed through all the tissues of the abdominal walls, and then through all the coats of the viscus; so that broad peritoneal surfaces were brought in contact throughout the entire circumference of the bladder wound. Great care was given to the security of these sutures, from the fear that the dragging of the heavy liver might displace them. A large perforated rubber drainage-tube was carried to the bottom of the gall-bladder, and the sutures all fastened after thoroughly cleansing all portions of the peritoneal cavity in the vicinity of the wound. Iodoform was dusted on to the wound freely, and it was covered with an extensive and thick dressing of dry sublimated gauze. Outside of this was placed a mass of borated cotton, and over all the usual bandage.

The patient showed signs of considerable shock; was given a hypodermic injection of whiskey. There had been no attempts at vomiting. The patient was put to bed, head low, and hot water bottles to feet. Reaction came on fairly well, and on becoming conscious she complained of severe pain at the site of the operation, was fed with cracked ice and given morphia hypodermically.

At 10 P. M. the pulse numbered 84. Temp. was $98\frac{1}{2}^{\circ}$, and the skin was moist and cool. Complaints of pain in wound at intervals; has some

nausea, but has not vomited. Passed a comfortable night, and was free from nausea. The patient was now bolstered up into a half-sitting posture in order to relieve, as far as possible, tension on the gall-bladder.

After complete recovery from the effects of the anæsthetic the patient was quite comfortable, and until the wound healed the highest point reached in temperature was $99\frac{1}{2}^{\circ}$. For a few days alimentation was mainly carried out by rectal injections; keeping the stomach quiet aided in preventing vomiting; had this occurred the attachments of the cyst would have been greatly endangered. Aside from nervousness the patient was free from any inconvenience. The urine was dark in color and normal in amount. The bowels were moved on the third day by enema.

The wound was not disturbed at all, merely additional dressings of dry cotton placed over that already on, for the purpose of absorbing a very profuse flow of greenish fluid which showed itself on the second day, and rapidly saturated everything about the patient. On the fourth day, December 24th, owing to the profuseness of this discharge, a change of dressing became imperative. The wound was found glued together throughout its entire length, except at the site of fistula. No tenderness or swelling indicative of any inflammatory condition was present. The enlarged liver had entirely disappeared, and percussion placed it within the normal boundaries. The line of the wound, instead of being flush with the surface of the chest, was drawn under and beneath the costal cartilages. The free flow of greenish fluid had evidently entirely relieved the engorged hepatic ducts. Some of the stitches in the abdominal wound were removed. The drainage-tube was taken out and the cavity of the gall-bladder probed, deep in its cavity some foreign body was felt, and two of the smaller stones here shown were removed by the forceps; no others were felt. The drainage-tube was replaced, and the same dressings as first used reapplied.

On the 7th day, December 26, redressing was again required, on account of the free discharge of similar greenish fluid, so abundant that it saturated the bedding as well as dressing. All sutures removed; wound entirely healed. Probing of the cyst cavity again discovered foreign bodies, and with the forceps five more gall-stones were removed. The last, the largest, here shown, was seized with much difficulty, and seemed

Fig. 1.



to be embraced by mucous membrane (Fig. 1). No more stones were found at any time. (The total weight of the seven stones removed is 7.22 grs.)

The patient improved rapidly in general health; all the functions are performed normally; the jaundice has entirely disappeared; she is free from all pain and in bright spirits; and up and about the room. At the end of two weeks the patient could, apparently, have safely left the hospital, had she lived away from the city, and could have gone to her home completely cured. The probe when introduced into the fistula seemed to come in contact with a roughened surface. The stools were still light-colored, unstained with bile. Every day or two a profuse flow of muco-biliary fluid came from the fistula, which the patient again said was accompanied

with severe pain. The amount of pain was undoubtedly exaggerated, as the pain was not complained of until the discharge made its appearance outside of the dressing, and was on several occasions overcome by hypodermic injection of water.

Still all these occurrences seemed to point to continued occlusion of the common duct from some cause. Half a pint of sweet oil was administered with the hope of overcoming the obstruction. No stone was found in the subsequent dejections, but there came away six round, firm, white bodies about the size of a bean, which were at first supposed to be concretions of cholesterine; examination showed them to be merely inspissated mucus and free oil. Perhaps such are the only bodies recovered after using sweet oil as a remedy for this trouble.

After failure to obtain relief with remedies, it was determined again to perform laparotomy to confirm a diagnosis of partial occlusion from stenosis or an impacted stone, close to the intestines, in the common duct. On January 18th, with the assistance of Drs. R. Filley, E. P. Davis, and L. H. French, vertical incision, four inches in length, commencing at the fistula, was carried through the abdominal wall. The deepest part of the dissection was made with great care, in anticipation of meeting with adhesions between the abdominal walls and intestines. These adhesions were not entirely avoided; near the gall-bladder, at the highest point of the incision, the wall of the duodenum was partially torn through, and troublesome bleeding came from the tear, which was finally controlled by sponge pressure. The loose intestinal folds gave no trouble, and were easily held out of the way, so that the entire course of the duct from the gall-bladder to the duodenum could be readily and clearly traced with the finger. It felt like a dense hard cord. The bladder was entirely empty. No calculus could be found in any portion of the duct. Bougies of different sizes were passed through the fistula, and, guided by the finger, an attempt was made to pass them into the duct; no success was met with. Then a steel sound, No. 11, was passed through the fistula, and again guided by the finger in the peritoneal cavity, after some manipulation, was finally carried into and through the common duct into the cavity of the intestine. No calculus was felt, and no other special obstacle to its passage was recognized. The abdominal wound was thoroughly closed with sutures in the usual manner. No drainage employed. Antiseptic gauze used for dressing.

The patient rallied well from the operation, but free vomiting soon showed itself, and the ejecta were mainly bile. This vomiting of bilious fluid continued during the first twenty-four hours after the operation, and there was no discharge from the old fistula. An enema brought a freer discharge of bile from the rectum, the first to show itself since the trouble began, quite two years ago. All these facts proved that the passage of the sound had restored the patency of the biliary ducts. Some discharge soon came through the fistula, mostly mucus, but bile-stained. The dejections were carefully examined while the patient remained in the hospital, but no gall-stones were discovered. Convalescence was without interruption, appetite returned, and pain was entirely relieved. The sutures were removed on the seventh day, and the wound found completely united by first intention. The patient was discharged well with the fistula rapidly healing on February 1st, 1885.

On April 1st, two months after leaving the hospital, Mrs. B. sent for me again, suffering severe pain in her side. I found that the fistula had been

entirely healed for two weeks, and that she had been absolutely free from pain during the previous two months. The day before she had been out all day exposed to the inclemency of very bad weather, and the result was that she had a severe bronchitis and a return of the old pain.

The site of the wound was tender to the touch, and I re-opened the fistula with a tenotomy knife, giving exit to quite a quantity of bile-stained mucus, which continued to flow during the next day. The pain was entirely relieved by this procedure. A small drainage-tube was re-introduced, and is to be kept in place with the intention of keeping the fistula open for some time.

Bile has not ceased to be discharged through the natural channel at any time since the last operation. Still, evidently, the calibre of the common duct is not sufficiently large to carry off any increased flow of biliary secretion.

The patient has improved greatly in general health, has gained flesh, and has a bright clear complexion, and has resumed all her household duties.

Some suggestions follow as an outgrowth of this case which are of practical importance and application.

It is quite certain that the gall-stones in this case were not lodged in the gall-bladder, and could not have been overlooked at the time of the operation. It is highly probable that they were retained in some of the dilated hepatic ducts, and were washed into the cyst by the flow of biliary fluid which came on immediately after the formation of the fistula. I am inclined to believe that they had but little to do with preventing the flow of bile into the intestine; at least the patulency of the passages was not restored by their removal.

The remarkable and profuse flow of muco-biliary fluid, coming through the sinus established, argues very strongly in favor of the operation which contemplates the formation of a fistula in the gall-bladder in distension thereof by confined secretions. Certainly I think no tube of the dimensions of the ductus communis choledochus could have given a free exit; at least the accompanying back pressure on the walls of the cyst would have greatly endangered, if not certainly destroyed, the adhesions in any recent wound thereof, even when protected by the continued suture. Most of the cases of reported cholecystotomy which I have been able to consult tell of the absence of a freer flow through the fistula, so that it is a condition to be expected, and it makes immediate closure of the bladder wound without drainage a dangerous proceeding to adopt, even if we can be positively assured of a clear common duct.

In a recent letter from Mr. W. T. Meredith, of London, in reply to some inquiries about his case of cholecystotomy, Mr. M. says his case has been given in the later tables as a fatal one, but that he has not given as yet a complete report of it. A large amount of biliary matter was formed in the gall-bladder. It was tapped with the trocar, and then freely opened. Three large stones were found and removed, and as the common duct seemed entirely patulous, the opening in the bladder was carefully

closed, no drainage adopted, and the external wound closed. The operation was done under the spray. The patient died inside of forty-eight hours with suppression of urine. On *post-mortem* examination the gall-bladder contained half a pint of bile, and considerable quantities (several ounces) were found in the folds of the mesentery; some bile had also gotten into the duodenum. The gall-bladder incision seemed entirely closed, none of the fluid coming out on squeezing the cyst. The kidneys were found diseased, and their condition evidently mainly led to the fatal issue.

Still Mr. Meredith says: "As regards the dispensing with all drainage, I am not disposed to repeat the procedure above described, although I do not see why it should not succeed in a favorable case, provided always that it is possible to ascertain with certainty that the ducts are left quite free. This, of course, constitutes the weak point in the matter; and on the whole, therefore, I think the usual plan of drainage and suturing to the abdominal wall should be performed."

This is the only case of immediate closure that I have any account of in which the report is at all full. I am disposed to go further than Mr. Meredith by expressing my conviction that the back pressure of accumulated secretions following a long period of occlusion must have an additional safety valve, and that the safety of the patient demands the establishment of a fistula when possible.

Naturally follows the question of whether it is always possible to establish a fistula in cases of gall-stone obstruction? Within a week of the time of doing the operation above reported, this question was practically answered by a *post-mortem* examination on the body of a lady who had suffered for some years with all the symptoms of gall-stones. The examination revealed the gall-bladder shrivelled to the size of the thumb, and the common duct distended and containing six gall-stones of the size of the two now shown to you, which are of the six found in this case. In this case the bladder could not have been brought in contact with the abdominal walls, as the patient was not thin, and the intestines over-full and of large calibre. It is quite certain an operation in this case would have presented many difficulties. Here incision of the duct, removal of the stones, and immediate closure by means of the intestinal stitch would have been, perhaps, the only operation to do. In such a case, to me the best practice would seem to require the insertion of a drainage-tube to the site of the duct wound, and the bringing of it out of the abdominal opening, in order to provide for external exit, should any leakage occur.

Nature's methods of freeing the bladder and ducts from their foreign bodies are unique, interesting, and sometimes dangerous. Here, for instance, are shown to you several gall-stones which produced death by ulcerating their way into the stomach through the walls of the pylorus, and were found in the stomach *post-mortem*. The case was in charge of

Fig. 2.



Dr. C. T. Fenn, of Chicago, Illinois. (Fig. 2.) Through the courtesy of Professor Hosmer A. Johnson, of Chicago, I am enabled to show this valuable specimen. It displays a very large gall-stone in the lumen of the small intestine. It was removed *post-mortem*, and caused the patient's death from obstruction of the bowel. The patient suffered from the ordinary symptoms of bowel obstruction, and died with all the signs thereof present. The autopsy not only gave this specimen, but showed as well the large opening made by ulceration between the gall-bladder and duodenum, through which it passed into the bowel. A full account of the paper, with valuable suggestions as to procedure in relieving the obstruction had laparotomy been done, was published by Professor Johnson, in 1875, in the *Chicago Medical Examiner*, July 1, 1875.

This beautiful specimen of pure cholesterin (weighing 174.29 grs.) was removed from an abscess of the abdominal walls, near the anterior superior spine of the right ilium. The patient recovered entirely after a few months'

Fig. 3.

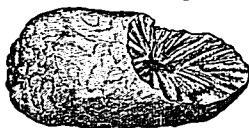
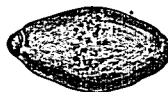


Fig. 4.



trouble with a fistula. (Fig. 3.) Finally, this specimen (Fig. 4) was removed by myself a month or so ago from the centre of a solid tumor occupying partly the abdominal wall, and dipping into the abdominal cavity in the region of the gall-bladder. The operation was exploratory in character to determine the nature of the tumor, and this stone, weighing 42.46 grs., was accidentally hit upon. Microscopically, examination of sections of the tumor shows nothing but fibrous tissue. Was the tumor a result of the irritation incidental to the presence of this stone? It has begun to disappear.

A reasonably sure diagnosis can be always made by means of exclusion. The chronic character of the symptoms, their prolonged existence without any especially noticeable changes in surrounding organs, with accompanying systemic manifestations, are characteristic.

The paroxysmal pain, coinciding, as it does, with periodic biliary secretion and flow, is almost pathognomonic. The presence of a determinable tumor adds to the certainty. To my way of thinking, exploratory puncture with the needle is neither safe nor desirable, nor necessary.

The safety of the operation is plainly demonstrated by the tables of operations so far given. Ending September 3d, 1884, Drs. Keen and Musser tabulate thirty-five cases. There have been reported since then two cases by Mr. Tait, one by Mr. Savage, one by Mr. Taylor, and one by myself, bringing the total number of operations up to forty.

In this list are found recorded ten deaths, but these statistics show no deaths in uncomplicated cases of cholecystotomy. The relief given seems so far to be almost immediate as well as permanent. I cannot bring myself to believe that cholecystectomy, either partial or complete, is either rational or safe surgical operation.

Dr. J. McF. Gaston, of Atlanta, Ga., has published, in the *Atlanta Medical and Surgical Journal* for September and October, 1884, a most complete and commendable paper on the surgery of the gall-bladder, embracing also a very graphic *résumé* of the attending troubles requiring surgical interference in diseases of that organ. In this paper Dr. Gaston advocates the establishment of a fistula, between the bladder and the duodenum, by fastening the walls of the two viscera together, and making an opening through the adherent surfaces at the time of the operation instead of making an external fistula, in this way providing a passage for the biliary secretions along their normal channel and securing all its benefits to the general system. He has successfully performed the operation recommended upon dogs.

Nature often takes the same course, and practically secures the same kind of a fistula as Dr. Gaston advises to be made in many attempts to get rid of these calculi. One objection to the adoption of such a procedure rests on the fact that it enhances, perhaps greatly, the danger of an operation which has so far been proven to be comparatively safe and entirely reliable in giving relief.

It would be presumptuous to advise the general practice of sounding the common duct through the external opening, from its results in this single trial; still it is quite sure that such procedure can be safely carried out, and equally certain that its adoption in this case resulted in relief that did not follow the removal of the calculi alone.